

Application No.: 10/054,755
Filed: November 12, 2001
Reply to Office Action of July 17, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A rotary pump comprising:

1. A rotary pump comprising:

a main casing;

a casing cover cooperated with said main casing for defining a pumping chamber there between;

a pair of rotors received within said pumping chamber with mutually meshing pumping segments for synchronous revolution in mutually opposite directions;

a space being defined in one portion of said casing cover;

a cover piston being disposed within said space for movement back and forth with respect to an end surface of said rotor and being connected to one end surface of a piston rod of an air cylinder;

~~an said air cylinder being mounted on said casing cover and having a piston rod, to which said cover piston is connected~~ comprising a piston;

at least one port being communicated with forward drive side and reverse drive side cylinder chambers and defined on both sides of the said piston of said air cylinder.

2. (Currently Cancelled) A rotary pump comprising:

a main casing;

a casing cover cooperated with said main casing for defining a pumping chamber there between;

a pair of rotors received within said pumping chamber with mutually meshing pumping segments for synchronous revolution in mutually opposite directions;

a space being defined in one portion of said casing cover;

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a cover piston being disposed within said space for movement back and forth with respect to an end surface of said rotor;

a lock cylinder having a lock bolt being mounted on said casing cover for restricting movement of said cover piston by said lock bolt.

3. (Currently Amended) A rotary pump comprising:

a main casing;

a casing cover cooperated with said main casing for defining a pumping chamber there between;

a pair of rotors received within said pumping chamber with mutually meshing pumping segments for synchronous revolution in mutually opposite directions;

a space being defined in one portion of said casing cover;

a cover piston being disposed within said space for movement back and forth with respect to an end surface of said rotor and being connected to one end surface of a piston rod of an air cylinder;

~~an~~ said air cylinder being mounted on said casing cover and ~~having a piston rod, to which said cover piston is connected~~ comprising a piston;

at least one port being communicated with forward drive side and reverse drive side cylinder chambers and defined on both sides of the said piston of said air cylinder.

a lock cylinder having a lock bolt being mounted on said air cylinder;

~~said cover piston being connected to one end surface of said piston rod of said air cylinder;~~

the other end surface of said piston rod of said air cylinder being abutted to said lock bolt for restricting movement of said cover piston by said lock bolt.

4. (Previously Presented) A rotary pump comprising:

a main casing;

a casing cover cooperated with said main casing for defining a pumping chamber therebetween;

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a pair of rotors received within said pumping chamber with mutually meshing pumping segments for synchronous revolution in mutually opposite directions;
a space being defined in one portion of said casing cover;
a cover piston being disposed within said space for movement back and forth with respect to an end surface of said rotor;
a plurality of air cylinders being mounted on said casing cover in a condition where piston rods thereof are connected with each other, and said cover piston is connected to a piston rod;
and having a piston rod, to which said cover piston is connected.

5. (Previously Presented) A rotary pump comprising:

a main casing;
a casing cover cooperated with said main casing for defining a pumping chamber therebetween;
a pair of rotors received within said pumping chamber with mutually meshing pumping segments for synchronous revolution in mutually opposite directions;
a space being defined in one portion of said casing cover; a cover piston being disposed within said space for movement back and forth with respect to an end surface of said rotor;
a plurality of air cylinders being mounted on said casing cover in a condition where piston rods thereof are connected with each other, and said cover piston is connected to a piston rod;
and having a piston rod, to which said cover piston is connected;
a lock bolt being coaxially provided on said air cylinder at the rearmost position, and said cover piston being connected to said piston rod of said air cylinder at the most front side;
a piston or a piston rod of said air cylinder at the rearmost position being in contact with said lock bolt for restricting movement of said cover piston by said lock bolt.

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REMARKS:

Summary of Amendments

Claims 1-3 are currently being examined. Applicant has cancelled claim 2, and amended claims 1 and 3 to more particularly point out and more distinctively claim the subject matter of this invention and to further recite "at least one port being communicated with forward drive side and reverse drive side cylinder chambers and defined on both sides of the said piston of said air cylinder," support for which can be found at page 4, paragraph [0091], lines 18-21. Applicant has also corrected minor deficiencies in the Specification. These amendments do not add any new matter.

Applicant submits that all claim amendments presented herein or previously are made solely in the interest of expediting allowance of the claims and should not be interpreted as acquiescence to any rejections or grounds of unpatentability. Applicant reserves the right to file at least one continuing application to pursue any subject matter that is cancelled or removed from prosecution due to the amendments.

Claim Rejection-35 USC § 102

The Examiner rejects claims 1-3 under 35 U.S.C § 102(b) as being anticipated by any of US Patent Nos. 1,694,805 to Wiltse (Wiltse) and 2,210,152 to Sacha (Sacha).

Each of claims 1 and 3, as amended, is directed to a rotary pump that includes, among others, a cover piston being disposed within a defined space for moving back and forth with respect to an end surface of a rotor, an air cylinder being mounted on a casing cover, and at least one port being communicated with forward drive side and reverse drive side cylinder chambers. Note that through the port, air charged/discharged by the air cylinder automatically enables the cover piston moving back and forth. See, the Specification, pages 6-7. paragraphs [0102] and [0103].

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Regarding the air cylinder, as recited in claims 1 and 3, the Examiner asserts "an air cylinder (28 in Wiltse; 30, 31, 32 in Sacha) being mounted on the casing cover and having a piston rod (29 in Wiltse; 30 in Sacha) ..." (the Office Action, page 3, lines 7-9). However, the description appearing at page 1, lines 59-63 of Wiltse clearly states that "[a] coil spring 29 is positioned in the sleeve 28 with one end bearing against the central portion of the diaphragm 26." In other words, Wiltse discloses a pump including a spring (also *see* Fig. 1) not an air cylinder. Similarly, Sacha states that "[e]nd plate 24 is yieldingly forced into contact with the end faces of gears 9 and 10 by means of two symmetrically arranged short, adjustable compression springs 30, compressed by means of adjusting screws 31, in turn threadedly extended through cover 4 and held in proper position by lock nuts 32" (page 2, left column, lines 15-22). Here again, Sacha only discloses a pump including springs (also *see* FIG. 1) not an air cylinder. Applicant would like to bring the Examiner's attention to the terms "air cylinder" and "spring." The former refers to a machine element which involves a function of air, and the latter refers to a machine element which involves a function of displacement.

Thus, neither Wiltse nor Sacha discloses an air cylinder, let alone the port recited in amended claims 1 and 3. A claim can be rejected under 35 U.S.C. § 102 only if each element of the claim is disclosed in a single prior art reference. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Both Wiltse and Sacha fail to teach the claimed element of an air cylinder and a port, as recited in amended claims 1 and 3, and therefore, do not anticipate claims 1 and 3. Furthermore, Wiltse and Sacha provide no teaching or suggestion at all of a rotary pump including an air cylinder and a port, and therefore, do not render claims 1 and 3 obvious either.

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In view of the foregoing, Applicant respectfully submits that the claim rejection under 35 U.S.C § 102(b) is overcome and withdrawal thereof is requested.

Conclusion

Based on the foregoing amendments and remarks, favorable consideration and allowance of amended claims 1 and 3 are respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place the case in condition for final allowance, then it is respectfully requested that such amendment or correction be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

The Commissioner is authorized to charge any required fees, including any extension and/or excess claim fees, any additional fees, or credit any overpayment, to Goodwin Procter LLP Deposit Account No. 06-0923.

Respectfully submitted,



Q. Hong Xu (Reg. No. 52,378)
GOODWIN PROCTER LLP
599 Lexington Avenue
New York, NY 10022
(212) 813-8839

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